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Item 2 of the provisional agenda**
Regional perspectives on the follow-up to and review of the 2030 Agenda for Sustainable Development

Regional and subregional perspectives on the transformation towards sustainable and resilient societies

Note by the secretariat***

Summary

The aim of the present document is to advance the dialogue on the readiness of the region to deal with an increasingly complex risk profile, focusing attention on the specific resilience capacities needed not only to adapt to but also to effect the transformations presented in the 2030 Agenda for Sustainable Development. It contains a description of how resilience is addressed in the Sustainable Development Goals and of the main drivers of the changing risk profile in the region, including from the subregional perspective. The concepts discussed are illustrated by quantitative analysis in relation to trade networks, food systems and climate change. Empirical analyses show that 73 per cent of critical food trade networks in the region show signs of reduction in resilience properties. The report concludes with recommendations on strengthening resilience capacities that can promote transformations in line with the 2030 Agenda.

I. Introduction

1. The present document contains information on regional and subregional perspectives on the theme of the 2018 high-level political forum on sustainable development, "Transformation towards sustainable and resilient societies".

2. The aim of the present document is to advance the dialogue on the readiness of the region to deal with an increasingly complex risk profile and the specific resilience capacities needed not only to adapt to but also to effect the transformations envisioned in the 2030 Agenda for Sustainable Development. In part, the analysis herein draws on the framing and discussions of a joint report prepared by the Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank (ADB) and the United Nations

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*** The present document was submitted late owing to the need to incorporate additional inputs.

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Development Programme (UNDP) for the regional preparations for the high-level political forum on sustainable development in 2018.

3. The present document has a focus on resilience as a characteristic of systems and contains a proposal for an analytical framework to explore the theme of transformation towards sustainable and resilient societies, based on a three-step approach: firstly, to identify sources and drivers of risks and how those risks interact; secondly, to analyse how emerging risks affect different critical systems in society (for example, food systems and economic and financial systems) and which sections of society are most vulnerable to those elevated risks; and thirdly, to identify the resilience capacities that need to be strengthened to address each specific risk and the appropriate policy measures to do so. This three-step analytical framework was found useful in guiding the deliberations at the subregional level[1] and could be useful for countries and communities in their attempts to strengthen resilience.

4. The present document is organized in five sections. Section I is an introduction. Section II places the concept of resilience within the context of the 2030 Agenda in Asia and the Pacific. Section III contains the analytical framework outlined above, together with examples of policy interventions from the region. Section IV contains an illustration of the application of the analytical framework to the case of the food system in the region, in order to convey its usefulness to policymakers. Section V contains a discussion on how to strengthen the transformative capacity, a capacity often lacking in even the most advanced societies in the region, and proposals for practical measures to build that capacity. The focus on building transformative capacity is in line with the theme of the high-level political forum on sustainable development in 2018. Further, it responds to the specific request conveyed by stakeholders during the discussions at the subregional level to identify practical ways to strengthen the transformative capacity of communities.

II. Resilience and the 2030 Agenda

5. Resilience in the context of the 2030 Agenda refers to the ability of human systems to withstand and recover from plausible hazards. Such hazards can include a wide spectrum of impacts of natural, economic and human-made crises, from droughts that endanger food security to financial instability and demographic shifts that amplify poverty. The region has several successful examples of demonstrating or strengthening resilience to risks related to economic, social and environmental dimensions that provide scope for mutual learning and exchanging of lessons within the region around the theme of resilience (see the box and section III for more examples).

[1] In preparation for the fifth Asia-Pacific Forum on Sustainable Development, ESCAP facilitated five multi-stakeholder subregional discussions. These events, organized in Almaty, Kazakhstan, on 27 and 28 September 2017, in Beijing on 10 and 11 October 2017, in Bangkok, on 18 and 19 October 2017, in Apia on 1 and 2 November 2017, and in Kathmandu on 1 and 2 November 2017, were attended by government officials and representatives of civil society, academia and business sectors.

Box

Selected success stories of resilience building from Asia and the Pacific

The remarkable resilience of the region to the 2008 global economic and financial crisis

The Asia region was one of the regions that exhibited strong resilience during the global economic and financial crisis that erupted in 2008. One of the key reasons cited for this is the region's learning from the Asian financial crisis of 1997, which resulted in strengthened early warning systems and institutions at the national and regional levels, which increased the region's ability to prevent and withstand shock. Further, several countries began to strengthen macroprudential policies as an integral part of their financial stability toolkits, overhauled their financial regulations and substantially increased oversight of financial institutions. These measures helped reduce risk-taking by households and firms before the global financial crisis in 2008. These reforms have also increased the ability of economies to address new risks associated with increased cross-border capital flows and greater integration with the rest of the world, more volatile external conditions and higher risk premiums.[a] However, the global crisis brought to the forefront other global vulnerabilities and system weaknesses which have implications for Asia.

Building resilience to infectious diseases, Republic of Korea

Though the Government of the Republic of Korea initially struggled to control the outbreak of Middle East respiratory syndrome in 2015, it used the outbreak as a way to transform preparedness to address risks of any infectious disease. Based on comprehensive consultations with the National Assembly, health expert groups, the World Health Organization and other stakeholders, in September 2015 the Government produced 48 reform measures to enhance its capacity to prevent, detect and respond to emerging infectious disease threats and public health emergencies like Middle East respiratory syndrome. The reform initiatives focused on the state-of-the-art point of entry quarantine system; rapid and effective emergency response; investment in controlling disease infection; the transformation of governance with regard to infectious diseases; and an enabling environment to reduce infections within medical institutions. The Government translated its lessons learned from the event into concrete actions to strengthen resilience and not only revised legislation but expedited funding and implemented the legislation.[b]

Multi-hazard early warning systems

The Regional Integrated Multi-hazard Early Warning System for Africa and Asia is an intergovernmental institution, owned and managed by more than 30 member States and collaborating countries. Established in 2009 with support from the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries, the Regional Integrated Multi-hazard Early Warning System allows member States to gather information at much lower costs than are possible with individual early warning systems, particularly for high-impact, low-frequency hazards. Its services include localized and customized severe weather and short-term weather information that supports contingency planning. It also offers medium-term weather information for logistics planning, as well as longer-term climate outlooks for resource planning and management. In addition, it analyses risks of climate variability and change, identifies risk management and adaptation options, and develops new-generation risk-information products. It also offers decision-making support tools, including risk assessment and interpretation, and translates early warning information into impact outlooks and response options. It is a good example of a regional initiative to strengthen resilience against emerging risks.

[a] Phakawa Jeasakul, Cheng Hoon Lim and Erik Lundback, "Why was Asia resilient? Lessons from the past and for the future", IMF Working Paper, No. WP/14/38 (Washington, D.C., International Monetary Fund, 2014). Available from www.imf.org/external/pubs/ft/wp/2014/wp1438.pdf.

[b] Republic of Korea, Ministry of Health and Welfare, *The 2015 MERS Outbreak in the Republic of Korea: Learning from MERS* (2015) (in Korean only). Available from www.cdc.go.kr/CDC/intro/CdcKrIntro0101.jsp?menuIds=HOME001-MNU1154-MNU0005-MNU0010&cid=70039.

6. Resilience is specified in the targets and means of implementation of several Sustainable Development Goals, including the targets of enhancing the resilience of poor and vulnerable groups (target 1.5), promoting resilient agricultural practices (target 2.4), investing in resilient infrastructure (target 9.1 and means of implementation 9.a), building resilient cities and human settlements (means of implementation 11.b and 11.c), increasing resilience to climate-related hazards and natural disasters (target 13.1) and strengthening resilience of marine and coastal ecosystems (target 14.2). The lack of data to monitor progress across these targets is a major challenge, highlighting the importance of disaggregated data to achieve the ambition of leaving no one behind. The following paragraphs present some highlights from the Asia-Pacific region on those targets and means of implementation.

7. While considerable progress has been made in the past decades to reduce poverty in Asia and the Pacific, the region must increase efforts to strengthen the resilience of all groups in society against the risk of impoverishment and social disadvantages. Persons living in least developed countries face a 60 per cent risk of poverty despite employment (compared to 12 per cent in Asia and the Pacific as a whole) and are 10 times less likely to receive social insurance benefits.[2]

8. Many countries in the region need to pay more attention to food security and diversification of food systems and to growth in the agricultural sector. In least developed countries, agricultural productivity that is vital to food security has only increased by 31 per cent from 2000 to 2013, while it doubled in high-income countries, widening the gap.[2] A total of 90 million hectares of agricultural land was lost between 2000 and 2013, due to land degradation and conversion to other uses, and the region has the world's highest rate of mineral fertilizer use per hectare.[3] In addition, in recent years, the agricultural sector has borne the brunt of natural hazards and absorbed almost 17 per cent of their total economic impacts. Since agriculture is linked to industry and services through both demand and production, a reduction in output can further slow overall economic growth.[4]

9. The infrastructure needs of the region are diverse and substantial; costs are projected to equal approximately $26 trillion between 2016 and 2030 in the region's developing countries, particularly in power and transport.[3] In order to climate proof this infrastructure, another $41 billion in annual investment would be required. Approximately 560 million people in the region still live in slums with poor-quality housing, insecure residential status, and inadequate access to safe water and sanitation.[3] Poorly managed urbanization on the back of environmental degradation in a region acutely affected by climate change is threatening to undermine sustainable development efforts, destroying vital ecosystems, and leading to detrimental health impacts from pollution, threats to food security, conflicting urban-rural resource demands and rising inequality.

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[2] ESCAP, *Statistical Yearbook for Asia and the Pacific 2016: SDG Baseline Report* (United Nations publication, Sales No. E.17.II.F.1). Available from www.unescap.org/sites/default/files/ESCAP_SYB2016_SDG_baseline_report.pdf.

[3] ESCAP, ADB and UNDP, *Asia Pacific Sustainable Development Goals Outlook* (Bangkok, 2017). Available from www.adb.org/sites/default/files/publication/232871/asia-pacific-sdgoutlook-2017.pdf.

[4] *Asia-Pacific Disaster Report 2017: Leave No One Behind - Disaster Resilience for Sustainable Development* (United Nations publication, Sales No. E.17.II.F.16). Available from www.unescap.org/sites/default/files/publications/0_Disaster%20Report%202017%20High%20res.pdf.

10. Disaster impacts have been undermining the region's economic growth, with costs quadrupling to about 0.4 per cent of gross domestic product (GDP) in recent decades.[4] The region's rapid, yet largely unsustainable, economic growth has increased the exposure of people and assets to natural hazards, increasing risks in a region that is already facing more frequent and intense natural disasters than any other. Although it is the world's most disaster-prone region, only one-third of Asia-Pacific countries report having disaster risk-reduction strategies, and the death toll from climate-related disasters remains 20 times higher than the global average. Measures to increase resilience are urgently needed.

11. Although the proportion of total territorial waters under protection on average across the region increased to 31 per cent at the country level since 2000, mainly among small island developing States, efforts to strengthen marine and coastal ecosystem resilience must be accelerated significantly.[2] In the Coral Triangle region alone, more than 85 per cent of reefs are threatened by local stressors, such as overfishing and pollution (versus the global average of 60 per cent), which increases to a staggering 90 per cent when combined with stress from ocean warming and coral bleaching (versus the global average of 75 per cent).[5]

III. Building the resilience of human systems: an analytical framework to guide policymaking

12. A resilient society tries not only to respond to disruption and crisis with efforts to bring the system back into balance but also tries to develop solutions, safeguards and risk management strategies that bring the system to a new state in which it can deal with present and future challenges. Resilience incorporates the ability of individuals, communities, businesses, local markets and systems to survive, adapt and grow in the face of stress and shocks, convert risks into opportunities and even transform when conditions require it. Therefore, resilience also provides a basis for understanding and developing strategies for sustainable transformation.

13. However, operationalizing the concept of resilience is often quite challenging across different areas and sectors and to policymakers. The analytical framework to approach the links between resilience and sustainable development from a policymaker's perspective, proposed here, uses a three-step process. Firstly, identify the sources of new and emerging risks in society. Secondly, map the critical systems in society that these risks will affect and who will be most vulnerable to the potential impact of risks on these systems. Thirdly, policymakers should formulate their policy responses to enhance certain specific resilience capacities to strengthen society's resilience to emerging risks.

A. What are the sources of risks in the Asia-Pacific region?

14. The Asia-Pacific region faces exogenous and endogenous trends that may entail risks and challenges while also creating opportunities. These fundamental drivers operate outside the remit of political decision-making and are sometimes hard to influence; they can be described as megatrends which act as the backdrop to building resilience and achieving the Sustainable Development Goals.

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[5] World Resources Institute, *Reefs at Risk Revisited in the Coral Triangle* (Washington D.C., 2012). Available from www.wri.org/sites/default/files/pdf/reefs_at_risk_revisited_coral_triangle.pdf.

15. These drivers have been explored at the regional level previously and include demographic change, rural-urban transition, increasing demand for natural resources and increasing pollution, regional economic cooperation and integration, climate change and technological progress.[6] They can bring important opportunities that will aid countries in their pursuit of the Sustainable Development Goals. At the same time, each of these megatrends are expected to pose risks to social, food, energy and other systems; risks which particularly threaten the most vulnerable in society.

16. More than the direct risks stemming from these drivers, it is their interactions with other drivers that are fundamentally altering the risk profile of the region. The interactions between wider development trends, shocks and internal risk factors lead to increasingly complex and unpredictable outcomes. What used to be a localized risk can now become a global crisis due to increasingly integrated trade networks and global value chains. As an example, in 2007 and 2008 extreme weather and disasters in parts of the region led to reduced wheat yields and contributed to higher prices of various food commodities worldwide. This exacerbated ongoing political crises in many countries, and food protests and riots broke out in 48 countries.[7]

B. Which systems and communities are most vulnerable to emerging risks?

17. One way to understand better how these megatrends pose increasingly complex risks for society is to study their impact on critical human systems, whose co-existence is crucial for the functioning of society. Some of the main components are the economic system (which determines resource allocation in societies), the financial system (which comprises the exchange and circulation of financial resources), social systems (comprising education, health and social security), provisioning systems (which includes food, energy, water and other important provisioning elements) and the broader environmental system. All these systems are interlinked; they support and complement each other for the functioning of a society. The broader regulatory system (which includes the political arrangements, legal arrangements, cultural norms, scientific knowledge and communications system) of the society govern the interlinkages and interactions between most of these systems.

18. In all subregions, discussions highlighted the interlinked nature of the risks posed by various drivers and trends on critical human systems. One example is the impact of demographic changes, especially the impact of aging and de-population on social systems. A second example is that of rural-urban transitions, which were frequently linked to a youth bulge in cities. Where young people face situations of unemployment and precarious or informal work situations and are not able to contribute financially to the cities' economies, it was considered a risk to the financial system. A third example is that increasing pollution, fuelled by the increasing use of natural resources, threatens the environmental system and is affecting the provisioning system. A fourth example is that climate change is projected to have far-reaching impacts on human systems. Those impacts on food systems and social systems in particular are seen as linked to and potentially creating conflict and security risks. And finally, regional economic integration has led to the increased

[6] For a discussion of these megatrends, see ESCAP, ADB, and UNDP, *Eradicating Poverty and Promoting Prosperity in a Changing Asia-Pacific* (Bangkok, 2017).

[7] Cullen Hendrix and Henk-Jan Brinkman, "Food insecurity and conflict dynamics: causal linkages and complex feedbacks", *Stability: International Journal of Security and Development* (June 2013).

availability of cheaper and unhealthy food choices. Driven by these changes in dietary patterns, there is now an alarming rise of non-communicable diseases in many countries of the region which has been increasing stress on the health systems in some countries.

19. The impact of these risks on different human systems will have varying impacts on different groups in society. They are likely to reinforce and exacerbate pre-existing social vulnerabilities in some countries (for example, caste-based discrimination in South Asia) and affect remote rural communities or coastal communities (for example, through the displacement of a large number of fishers and the reallocation of lands for tourism purposes in South-East Asia after the 2005 tsunami). The groups most affected by the negative impacts include youth, older persons, indigenous populations, urban informal sector migrants, unskilled and informal workers, persons with disabilities, women, children, and lesbian, gay, bisexual and transgender people. Because of the way impacts intersect and overlap, some vulnerable groups are more exposed to complex risks. It is therefore important to strengthen the resilience of communities and groups of people that face increasingly complex risk profiles.

20. To give an example, across all five subregions, urban informal sector migrants, especially those living in slums, were identified as a group that will be most impacted by the emerging risks to critical human systems. Although the proportion of the overall population that resides in urban slums in Asia and the Pacific is smaller than it was two decades ago, the absolute number continues to rise.[8] Slum dwellers are more exposed to vagaries of climate change as informal settlements tend to be in neighbourhoods that are more vulnerable to extreme weather events. Almost half a billion urban residents in Asia and the Pacific live in coastal areas, with increased vulnerability to storm surges and sea-level rise. It is estimated that up to 77 million urban residents in Asia and the Pacific could potentially fall back into poverty as a result of climate change impacts.[9] At the same time, these slum dwellers are the least protected from the increasing impact of pollution on critical environmental and provisioning systems (especially water and air).[10]

C. Framing resilience responses around capacities

21. Once drivers of risks are identified, together with the critical human systems that they impact and the people who are most vulnerable to these impacts, policies and interventions need to be made to strengthen resilience. Policy and institutional interventions that strengthen resilience capacities are an important means of operationalizing resilience.[11] Four resilience capacities are commonly highlighted in the literature and can inform national, regional

[8] ESCAP, ADB, UNDP, *Eradicating Poverty and Promoting Prosperity in a Changing Asia-Pacific* (Bangkok, 2017).

[9] World Bank, "Urban development", 2 January 2018. Available from worldbank.org/en/topic/urbandevelopment/overview#1.

[10] Marife M. Ballesteros, "Linking poverty and the environment: evidence from slums in Philippine cities", PIDS Discussion Paper Series, No. 2010–33 (Makati City, Philippine Institute for Development Studies, 2010). Available from https://dirp4.pids.gov.ph/ris/dps/pidsdps1033.pdf.

[11] Christopher Béné and others, "Resilience: new utopia or new tyranny? Reflection about the potentials and limits of the concept of resilience in relation to vulnerability reduction programmes", IDS Working Paper, vol. 2012, No. 405 (Institute of Development Studies, Brighton, United Kingdom, 2012).

and subregional responses: absorptive, anticipatory, adaptive and transformative capacities.[12] The following paragraphs include definitions of these capacities and examples from the region on ways to strengthen them.

1. Absorptive capacity

22. Absorptive capacity refers to the ability of social systems to absorb and cope with the impacts of shocks and stresses. This refers to the ability of social systems to manage and recover from adverse conditions mainly using available skills and resources. The higher the stock of diverse forms of capital, whether human, social, manufactured, financial or natural, the less severe the long-term impact of a particular shock on the availability and diversity of resources at the disposal of a society is likely to be.

23. Social protection schemes can play a significant role in strengthening absorptive capacity, as it, for example, smoothens consumption as well as capital and maintains political and social stability. Workfare programmes such as the one created by the Mahatma Gandhi National Rural Employment Guarantee Act in India, which guarantees employment for a stipulated number of days every year, is an example of a policy that can strengthen the absorptive capacity of individuals while simultaneously creating productive public infrastructure.[13]

2. Anticipatory capacity

24. Anticipatory capacity refers to the ability of social systems to anticipate and reduce the impact of shocks through preparedness and planning. This is seen in actions taken before an event to avoid upheaval, either by avoiding or reducing exposure or minimizing vulnerability to specific disturbances. Countries in the region have increased their anticipatory capacity in response to natural and other types of disasters, including through vulnerability assessments, early warning systems, exclusion mapping and inclusion monitoring tools, assessment of earthquake damages, the creation of specialized task forces, disaster risk reduction, preparedness and response plans, and subregional cooperation to support the most marginalized communities.

25. Successful examples of strengthening anticipatory capacity includes establishing early warning systems such as the Regional Integrated Multi-hazard Early Warning System for Africa and Asia (see box) and the early warning system established by Pacific countries to anticipate risks posed by climate change. At the same time, establishing appropriate communication channels and effectively communicating the information collected is an essential element of building anticipatory capacity. For example, in the Philippines, where dengue fever recurs every year, a poster that communicated

[12] Aditya V. Bahadur and others, "The 3As: tracking resilience across BRACED", BRACED Working Paper (London, BRACED, 2015). Available from www.farmafrica.org/downloads/braced.pdf.

[13] Dave Steinbach and others, *Aligning Social Protection and Climate Resilience: A Case Study of MGNREGA and MGNREGA-EB in Andhra Pradesh* (London, International Institute for Environment and Development, 2016). Available from http://pubs.iied.org/10156IIED.

ways to prevent it was distributed to households; this was found to help reduce dengue fever by 60.5 per cent in a short interval of time.[14]

3. Adaptive capacity

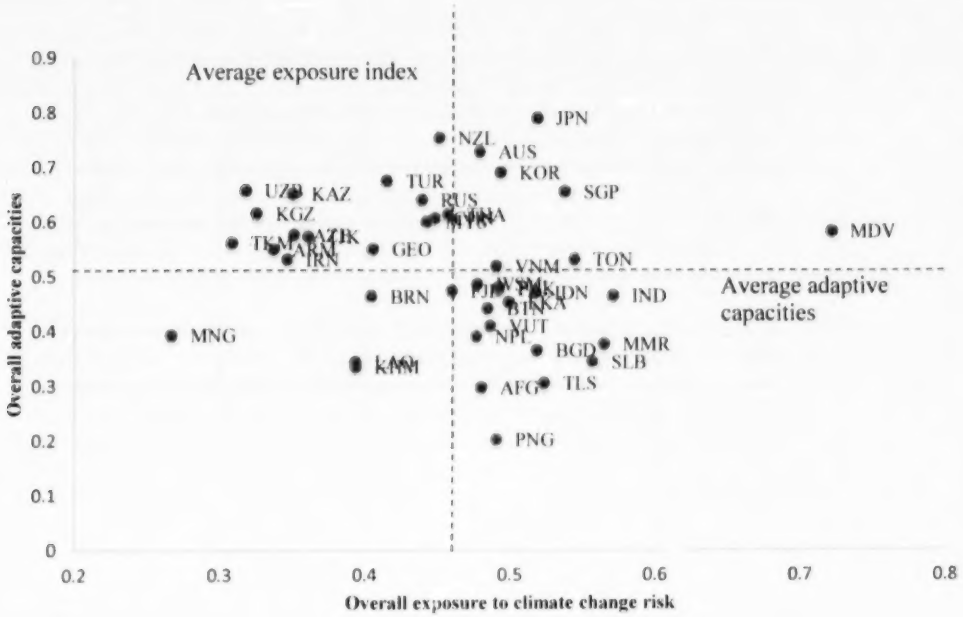
26. Adaptive capacity refers to the ability of social systems (for example households, communities or nations) to adapt to multiple, long-term and future risks and also to learn from and refine responsive capacities after a disaster. It describes the ability to take deliberate and planned decisions even when conditions have changed or are about to change in order to achieve a desired state. At the subregional consultations, it was emphasized that traditional knowledge, education and know-how can be a resource for building adaptive and absorptive capacities. Building adaptive capacity, for instance, includes diversification of crops and livestock to adapt to the effects of climate change and faster adaptation and scaling up of new technologies to fight pollution.

27. ESCAP research shows (figure I) that many countries that have lower adaptive capacities[15] to climate change-related risks are also the ones that are most exposed to those risks (lower right quadrant). Countries in this situation need to take urgent measures to build their adaptive and other related capacities to strengthen their resilience.

[14] "Case study: how the Manila Department of Health fought dengue fever", *Campaign* (Hong Kong), 25 September 2012. Available from www.campaignasia.com/article/case-study-how-the-manila-department-of-health-fought-dengue-fever/316804.

[15] Adaptive capacities are measured as aggregate adaptive capacities along the following human systems, namely, health, food, habitat, water, infrastructure and ecosystems.

Figure I
Level of adaptive capacities and overall exposure to risk from climate change



Source: ESCAP calculations based on data from the Notre Dame Global Adaptation Index dataset, 2016. Available from https://gain.nd.edu/our-work/country-index/.

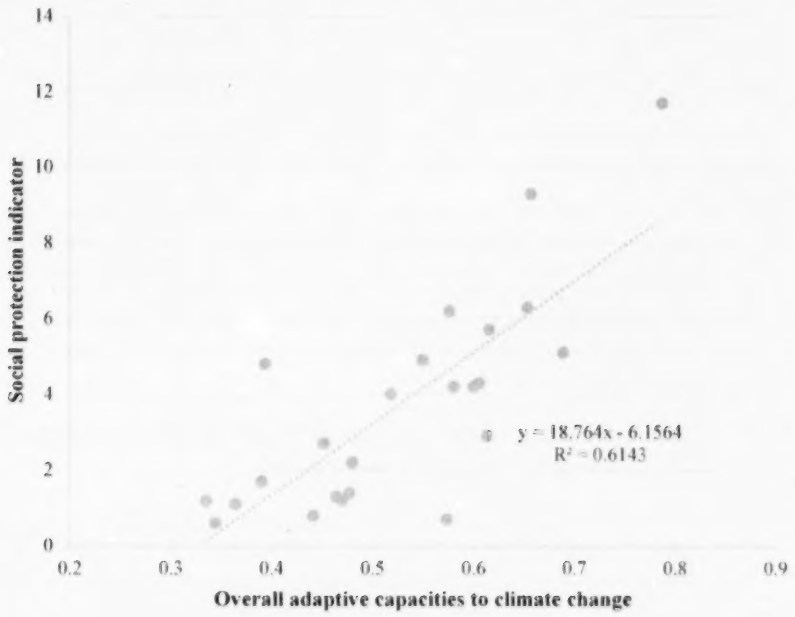
Note: AFG, Afghanistan; ARM, Armenia; AUS, Australia; AZE, Azerbaijan; BGD, Bangladesh; BRN, Brunei Darussalam; BTN, Bhutan; CHN, China; FJI, Fiji; GEO, Georgia; IDN, Indonesia; IND, India; IRN, Iran (Islamic Republic of); JPN, Japan; KAZ, Kazakhstan; KGZ, Kyrgyzstan; KHM, Cambodia; KOR, Republic of Korea; LAO, Lao People's Democratic Republic; LKA, Sri Lanka; MDV, Maldives; MMR, Myanmar; MNG, Mongolia; MYS, Malaysia; NPL, Nepal; NZL, New Zealand; PAK, Pakistan; PHL, Philippines; PNG, Papua New Guinea; RUS, Russian Federation; SGP, Singapore; SLB, Solomon Islands; THA, Thailand; TJK, Tajikistan; TKM, Turkmenistan; TLS, Timor-Leste; TON, Tonga; TUR, Turkey; UZB, Uzbekistan; VNM, Viet Nam; VUT, Vanuatu; and WSM, Samoa.

28. Targeted social protection policies can be a useful tool for Governments to strengthen the adaptive capacity of the most vulnerable groups. Strengthening resilience capacities requires a broad spectrum of institutional capacities and systems characteristics. To illustrate this point, figure II shows the strong correlation between the social protection index level in countries and their overall adaptive capacity to climate change risks. For example, in sectors such as agriculture, which is affected by risks arising from climate change and environmental degradation, skill development programmes for farmers to improve their adaptation capacity could be crucial. In Tajikistan, training activities for farmers on climate-resilient agro-biodiversity-friendly practices, financial management and the provision of microcredit was found to increase

their adaptive capacity.[16] The application of appropriate technologies to promote water conservation in China[17] and the promotion of new water management techniques in the Islamic Republic of Iran[18] were also found to strengthen adaptive capacity, especially in the agricultural sector. Further, the implementation of national adaptation plans and plans of action is a way to enhance the adaptive capacity of critical sectors and systems against the risk of climate change. Finally, income source diversification by promoting off-farm activities has enhanced the adaptive capacity of communities prone to flooding in Bangladesh.[19]

Figure II

Level of adaptive capacities to climate change and availability of social protection among States members of the Economic and Social Commission for Asia and the Pacific



Source: ESCAP calculations based on data from the Notre Dame Global Adaptation Index dataset, 2016, available from https://gain.nd.edu/our-work/country-index/; and ADB, *The Social Protection Indicator: Assessing Results for Asia* (Manila, 2016).

[16] Lisa Dougherty-Choux and others, *Adapting from the Ground Up: Enabling Small Businesses in Developing Countries to Adapt to Climate Change* (Washington, D.C., World Resources Institute, 2015).

[17] United Nations Environment Programme, "Discussion document for agenda item 8 (a) Theme: 'Towards a pollution-free planet', Regional input to outcomes of the third session of the United Nations Environment Assembly" document UNEP/APEnvForum(2)/2). Available from www.apministerialenv.org/document/UNEP_2E.pdf.

[18] UNDP, *Biodiversity for Sustainable Development: Delivering Results for Asia and the Pacific* (Bangkok, 2014).

[19] Practical Action-Bangladesh, *Good Practices for Community Resilience* (Dhaka, 2009).

4. Transformative capacity

29. Transformative capacity refers to the ability to make intentional changes to systems responsible for the creation of risk, vulnerability and inequality. Transformative capacity enables action to break away from the status quo when needed. It determines the ability to identify opportunities for transformation when there is a crisis or elevated stress and to create new visions and means of empowerment for stakeholders.

30. During the consultations, different actions to build transformative capacity were identified. These included, in North-East Asia, the promotion of lifestyle changes at the individual level and institutional reforms, including strengthening education systems to more effectively harness technologies and the development of new forms of insurance systems to meet the changing nature of risks. In the Pacific, facilitating behavioural change through promotion and advertising campaigns was identified as key in building transformative capacity to deal with non-communicable diseases. The South-East Asia consultation highlighted opportunities through the development of national vision documents for economic transformation, new systems and mechanisms to deal with climate change, awareness campaigns and improved cross-border collaboration between countries to control issues such as haze.

31. Building transformative capacity was recognized as strategic; however, practical ways to strengthen transformative capacity are not always obvious. For example, even though Japan recognized its aging phenomenon as early as the 1970s, the participants in the subregional consultation mentioned that their society lacked the transformation capacity to create systemic changes that could adequately address the challenges of aging. In section V, some practical approaches are identified.

IV. An application of the analytical framework: the case of the food system in Asia and the Pacific

32. In this section the analytical framework introduced in the previous section is applied to the specific case of food systems in the region to help to underscore its usefulness for policymakers. Building resilience in the region's food systems will be critical to address the increasing demand for food, the increasing climate-induced disasters and the increasing variability in weather patterns, all of which undermine production. The analysis starts with a description of vulnerabilities in food systems, with particular attention to trade systems as an important component of food systems, and highlights links to children's development. This approach demonstrates the interlinkages between components of human systems and how important it is to establish a comprehensive framework to assess and improve capacities for resilience.

A. What are the drivers of risks of the regional food systems?

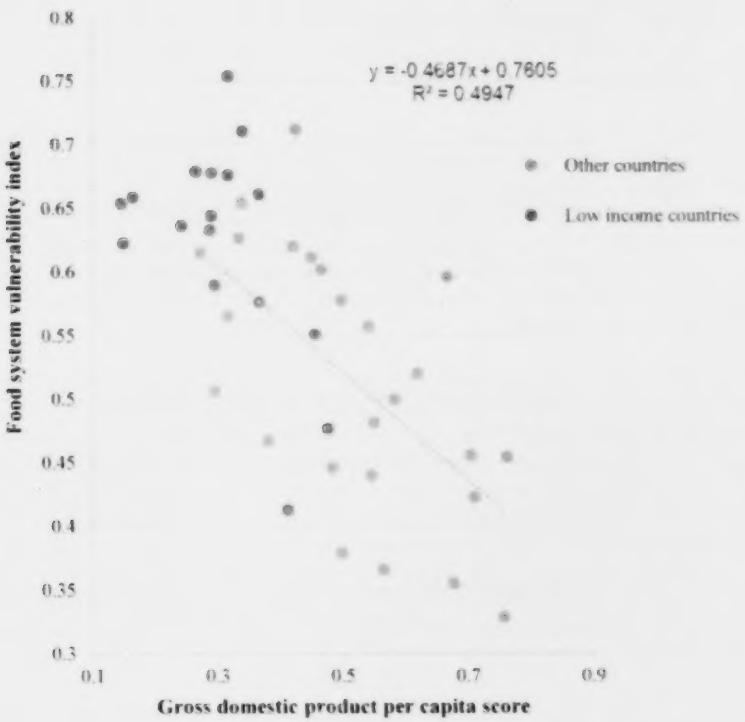
33. Food systems in the majority of the region's low income countries are increasingly vulnerable to climate change, as well as to risks resulting from demographic changes. Climate change is expected to make production more difficult and more expensive in the region; for example, the rice yield in several South-East Asian countries could decline by up to 50 per cent by 2100.[20] Figure III plots the measure of vulnerability of food systems of ESCAP

[20] ADB, *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific* (Manila, 2017).

member States to climate change and GDP per capita to show that countries that are least ready to face risks economically also have food systems that are most vulnerable to climate change.[21]

Figure III

Food system vulnerability index and gross domestic product scores among States members of the Economic and Social Commission for Asia and the Pacific, 2016



Source: ESCAP calculations based on data from the Notre Dame Global Adaptation Index dataset, 2016. Available from https://gain.nd.edu/our-work/country-index/.

Note: The food system vulnerability index is from 0 to 1. The higher the value, the greater the vulnerability of a country's food system to emerging risks of climate change and population growth. Gross domestic product (GDP) per capita scores also range from 0 to 1, with the score increasing as GDP per capita increases.

[21] The vulnerability of food systems to climate change encompasses aspects such as projected change in crop yield due to climate change, demographic changes (projected population trends) and sensitivity factors such as food import dependence of countries. For full details of all six components of the vulnerability index of food systems see "University of Notre Dame Global Adaptation Index: country index technical report" (South Bend, Indiana, 2015). Available from https://gain.nd.edu/assets/254377/nd_gain_technical_document_2015.pdf.

B. How do these drivers impact the food system and who are most vulnerable?

34. Trade systems are integral to regional food systems. Against the backdrop of the increasing vulnerability of food systems described above, the secretariat's analysis of trade systems relating to staple food commodities in the region shows that the resilience of these systems is in decline. With countries' increased dependency on a limited number of suppliers,[22] vulnerability to supply disruptions increases and there are fewer options to quickly ensure an adequate supply of food when disruptions in trade, whether due to political factors, natural disasters, transport linkage failures or other factors, occur.

35. ESCAP analysed the resilience of 74 staple food commodity trade networks in the region for the period 1986 to 2015[23] and found that 73 per cent of these networks show signs of reducing redundancy (which measures the degree of freedom or diversity of pathways within any network). Reducing redundancy (as in the case of increasingly "efficient" trade networks) is a sign of the weakening resilience of these networks. This means that for 73 per cent of these commodities, countries are becoming more reliant on fewer countries for their food imports.[24]

36. The combination of increasing vulnerability and reduced resilience of food systems points to an increasing risk of food supply disruptions, including through food price fluctuations. This has important implications for the region, where experience has shown that food price fluctuations can have devastating long-term implications for people's livelihoods. For example, the food price shock of 2007–2008 increased the depth of poverty in rural areas and led to higher malnutrition.[25] A repetition of these episodes can seriously undermine the ability of the region to meet several targets of the 2030 Agenda. For example, a direct impact of climate change and resulting food shortages would be an increase in the number of malnourished children in South Asia alone by almost 7 million.[20]

37. The most significant implication of rising food prices is the likely disproportionate impact on specific groups, such as children and the rural poor, with a resulting increase in development divides. Vulnerable groups of people and communities should be identified early on, and it is vital that they are placed at the core of society's efforts to strengthen resilience to achieve the central aspiration of the 2030 Agenda of leaving no one behind.

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[22] William D. Presutti, Jr., "The single source issue: U.S. and Japanese sourcing strategies", *International Journal of Purchasing and Materials Management*, vol. 28, No. 1 (December 1992), pp. 2–9.

[23] Ali Kharrazi, "Examining the resilience of agricultural and food commodity trade networks in the Asia and Pacific region" (forthcoming).

[24] One of the potential driving factors of this phenomenon in the region is preferential trade agreements. The Asia-Pacific region has been a major contributor to the growth of these agreements. Currently, the region has 167 preferential trade agreements: 63 per cent of the global total. The growth of these agreements increases the drive towards further regional trade liberalization. ESCAP analyses shows that there is a close association between the proliferation of these agreements and the reduction of resilience of food trade networks.

[25] Julia Compton, Steve Wiggins and Sharada Keats, *Impact of the Global Food Crisis on the Poor: What is the Evidence?* (London, Overseas Development Institute, 2010). Available from www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6371.pdf.

C. How can resilience capacities be strengthened to address emerging risks to food systems?

38. The above analysis is helpful for deriving the specific policy responses required to build resilience of food systems in the region. In terms of anticipatory capacity, the region needs to closely monitor the emerging threat of climate change with regard to its key food production areas. It is important to convey early on any climate anomalies, including variation in weather patterns, that can undermine the production potential of the main agriculture centres of the region. In terms of absorptive capacity, community-level or national-level food stocks can be built to tide over unexpected food shortages. In terms of adaptive capacity, adaptation plans and policies need to be drafted to climate proof the dominant food production areas that are most vulnerable to climate change.

39. In terms of transformative capacity, one important takeaway from the earlier analysis is that the trade networks that support the provision of food in the region are showing signs of weakening resilience. There needs to be a paradigm shift in policymaking with regard to trade in the region so that building the overall resilience of critical commodity trade networks becomes an ex-ante priority of policymakers. This would require fundamental shifts in policymaking and how preferential trade agreements are made by countries. For example, incentives could be integrated within regional trade and investment agreements that would encourage the transfer of agricultural technology and the production and trade of climate-resilient food crops. Other incentives could promote agricultural investments in regions that are less vulnerable to climate change. This would improve the overall resilience of food systems in the region but realizing these transformations, especially at the regional level, involving multiple stakeholders, is very challenging. The next section deals with certain specific ways to strengthen the transformative capacity of societies to address some of these challenges.

V. Conclusion: addressing the challenges to strengthening transformative capacity of societies

40. The discussions held across the region in preparation for the fifth Asia-Pacific Forum on Sustainable Development underlined that while all four resilience capacities were important for dealing with the risks identified, societies found building transformative capacities and instituting transformations a major challenge. Transformation is a long-term, dynamic, whole-of-society process that dramatically improves the outcomes of complex long-term trends. Considering the gaps, existing policy approaches and institutional mandates, and the perspectives shared at the subregional consultations, five ways to strengthen the transformative capacities of societies are identified in this section.

41. First, monitoring mechanisms, to identify a coming crisis or an opportunity for transformation, are critical; this includes the establishment of regular monitoring systems, backed by appropriate analytical capacity, and forums for social dialogue. For example, several Governments in the region have established offices of strategic foresight to identify emerging risks and opportunities and initiate systemic transformations.[26] Such offices should be

[26] UNDP Global Centre for Public Service Excellence, *Foresight as a Strategic Long-Term Planning Tool for Developing Countries* (Singapore 2014). Available from www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/GPCSE_Foresight.pdf?download.

empowered and given clear mandates to influence the national agenda-setting process. Though establishing monitoring mechanisms also strengthens anticipatory capacity, the level of monitoring required to strengthen transformative capacity is much deeper.

42. Second, institutional mandates to facilitate collective learning processes, systems thinking approaches, and the role of learning in policymaking should be strengthened. Transformative capacity emphasizes collective learning and knowledge generation, as well as equitable access to information as a means of defining opportunities for change and defining solutions; learning that leads to transformation takes a much deeper form, moving beyond the incremental improvement of action strategies that do not question underlying assumptions.[27] In the wake of the 2008 financial crisis, researchers argued that when it comes to the measurement of economic performance and social progress, institutions are still rigid and focus on statistics and general criteria such as growth and GDP without questioning the basic assumptions that led to the crisis in the first place.[28]

43. Dealing with institutional learning rigidity is a precondition for wider social change, and it requires informal settings connected to formal processes.[27] Learning that supports transformation will also require knowledge systems that are accessible and better able to deal with complexity, integration and foresight. This will include "societal agenda setting, collective problem framing, a plurality of perspectives, integrative research processes, new norms for handling dissent and controversy, better treatment of uncertainty and of diversity of values, extended peer review, broader and more transparent metrics for evaluation, effective dialogue processes, and stakeholder participation".[29] Informal and formal sector exchanges can also provide opportunities for learning. Information and communications technology enhances access to knowledge and the ability to source knowledge from diverse sources, including traditional sources.

44. Transformative capacity can be strengthened by mechanisms to increase the diversity of paths for accessing or mobilizing resources and capital by those who most need them. Financing, in particular through a focus on impactful investment, will be needed, together with enhanced partnerships and collaboration. Governments' increased capacity to facilitate collaboration, and the right kinds of partnerships, is critical. Several lessons can be learned from

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[27] Claudia Pahl-Wostl, "A conceptual framework for analysing adaptive capacity and multi-level learning processes in resource governance regimes", *Global Environmental Change*, vol. 19, No. 3 (August 2009), pp. 354–365.

[28] "The Commission's aim has been to identify the limits of GDP as an indicator of economic performance and social progress and to assess the feasibility of alternative measurement tools". See Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi, "Report by the Commission on the Measurement of Economic Performance and Social Progress" (accessed 31 January 2018). Available from http://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report. Since then, multilateral agencies have developed new products that endorse the need for new indicators that measure well-being. See Organization for Economic Cooperation and Development, "How's life? 2017: measuring well-being – the 60-second guide", available from www.oecd.org/std/Hows-Life-2017-60-second-guide.pdf; and John Helliwell, Richard Layard, and Jeffrey Sachs, eds., *World Happiness Report, 2017* (New York, Sustainable Development Solutions Network, 2017), available from http://worldhappiness.report/ed/2017/.

[29] Sarah Cornell and others, "Opening up knowledge systems for better responses to global environmental change", *Environment Science and Policy*, vol. 28 (April 2013). Available from www.sciencedirect.com/science/article/pii/S1462901112002110.

the distinct characteristics of successful partnerships in the agricultural value chain that have transformed livelihood and development opportunities for rural communities.

45. The promotion of innovation, especially economic and social innovation, is an important building block of efforts to strengthen transformative capacity. Given the fundamental changes observed in the Asia-Pacific region, innovative solutions are needed, ones that take into account the complexity of the challenges and that allow human systems to learn, adapt and transform. And perhaps more importantly, the capacity of the Asia-Pacific region needs to be built so that such innovative solutions can be found repeatedly. Therefore, part of building transformative capacity is strengthening a culture of innovation. Social innovation can provide locally relevant solutions to different development challenges. The private sector role in promoting innovation is critical.

46. Finally, policymakers need to expand the space for engagement as a basis for strengthening inherent transformative capacity. Observers in the Republic of Korea in the wake of the 1997 financial crisis referred to the spirit of the times, the zeal for reform, national unity and the role of dialogue and participatory democracy "as an equal, indispensable companion to durable economic reform". Transformation requires shared awareness and understanding, alliances between different kinds of stakeholders and different institutions. It also requires supportive governance structures to strengthen social buy-in, backed by more accountability and responsibility for all actors.

47. These policy and institutional interventions also apply at the subregional and regional levels. At those levels, resilience thinking can support transformation by enabling reflection on long-term trends and defining the need for collective action in forums such as the Asia-Pacific Forum on Sustainable Development. Considering the commonalities in risk profiles identified across subregions, there is considerable scope for the establishment of regional monitoring mechanisms. Strengthening partnerships and collaboration with countries, in particular countries with special needs, needs to go beyond trade relationships and economic access; it requires greater focus on capacity-building and institution-building to strengthen governance to better mobilize societal resources for inclusive benefit. And finally, investments are needed to strengthen regional and subregional mechanisms for learning and the necessary supportive knowledge systems.

VI. Matters calling for the attention of the fifth Asia-Pacific Forum on Sustainable Development

48. Member States and other stakeholders are invited to review the present document with a view to:

(a) Sharing national perspectives on the issues raised and best practice responses to the challenges identified. Member States and other stakeholders are invited to focus attention on the priority thematic areas of the regional road map for implementing the 2030 Agenda in Asia and the Pacific, with respect to the resilience of poor and vulnerable groups, the agricultural sector, infrastructure development, cities and human settlements, climate-related hazards and natural disasters, and marine and coastal ecosystems;

(b) Discussing opportunities for regional cooperation to support national efforts towards transformations for sustainable and resilient societies.